

An optimum UMTS Modem for multimedia Data, Voice, VoIP in wireless Internet applications.

Abstract of Disclosure

The present invention encompasses several improved methods and architecture of an UMTS modem for delivering optimum high-speed broadband information, commerce and multimedia entertainment services to mobile users via fixed, wireless and satellite IP networks. The present invention utilizes Turbo Codes baseband processor for optimum performance in decoding received data in limited power and noisy environments. The present invention provides a method for dividing the high-speed bit-stream into multiple slow-speed sub bit-streams, and also dividing the UMTS broadband channel into multiple sub-channels for transmitting each sub bit-stream in the assigned adjacent sub-channels, and the uses of the Orthogonal Frequency Division Multiplexing method implemented by N-point complex FFT/iFFT processor in which it effectively divides the broadband high-speed channel into multiple slow-speed N sub-channels where multiple adjacent channels transmit their carriers' frequency which are orthogonal to each other. Also, when M is smaller than N, channels hopping can be done by re-assigning a bit-stream to another sub-channel slot.

Figures

Figure 1: A schematic diagram illustrating the experimental setup for measuring the time delay of a signal. The diagram shows a signal source (S) connected to a delay line (DL) and a detector (D). The signal source is connected to the delay line, which is connected to the detector. The delay line is labeled with a time delay τ . The signal source is labeled with a frequency f . The detector is labeled with a time delay τ . The diagram is labeled with a time delay τ .